



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,885	12/16/2003	Takeshi Nishi	07977-121003	4773

26171 7590 02/22/2006  
FISH & RICHARDSON P.C.  
P.O. BOX 1022  
MINNEAPOLIS, MN 55440-1022

EXAMINER

NGO, HUYEN LE

ART UNIT PAPER NUMBER

2871

DATE MAILED: 02/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

<b>Application No.</b> 10/735,885	<b>Applicant(s)</b> NISHI ET AL.	
<b>Examiner</b> Julie-Huyen L. Ngo	<b>Art Unit</b> 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1)  Responsive to communication(s) filed on 02 June 2005.
- 2a)  This action is **FINAL**.
- 2b)  This action is non-final.
- 3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4)  Claim(s) 11-16 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5)  Claim(s) \_\_\_\_\_ is/are allowed.
- 6)  Claim(s) 11-16 is/are rejected.
- 7)  Claim(s) \_\_\_\_\_ is/are objected to.
- 8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9)  The specification is objected to by the Examiner.
- 10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1)  Notice of References Cited (PTO-892)
- 2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5)  Notice of Informal Patent Application (PTO-152)
- 6)  Other: \_\_\_\_\_

**DETAILED ACTION**

***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 2, 2006 has been entered.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 13-16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. These contain subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In claims 13 and 15, "***said modulating layer including optical active substances and dichroic dye molecules*** "

In claims 14 and 16, "***the dichroic dye molecules are oriented in all direction around the axis that is perpendicular to the substrates to attain a dark state when the electric field is not applied.***"

Art Unit: 2871

Applicant is to note that the original specification discloses ONLY a singular optically active substance, and a singular dichroic dye as described in the specification under the following paragraphs:

... the light modulating layer including a liquid crystal, an optically active substance, and a dichroic dye... [paragraphs 24-25].

... The liquid crystal material is a liquid crystal containing a dichroic dye and an optically active substance therein [paragraph 33].

The liquid crystal may be a nematic liquid crystal, for instance. An optically active substance is added to the liquid crystal to have it assume a cholesteric phase. It is desired that the concentration of the dichroic dye be about 1 wt % with respect to a mixture containing the liquid crystal [paragraph 49].

This embodiment employs a combination of a nematic liquid crystal added by an optically active substance and a dichroic dye (positive type) [paragraph 51].

The display characteristics also depend on the cell thickness  $d$  as well as the viscosity of an added optically active substance and the spiral pitch  $p$  of a liquid crystal [paragraph 75].

Results of a study on the influences of the cell thickness  $d$  with the use of azo dyes as the dichroic dye will be described below. It is assumed that the spiral pitch  $p$  of a liquid crystal is set constant by properly adjusting the amount of an added optically active substance [paragraph 77].

... The material of the light modulating layer 204 is a mixture of a liquid crystal material, a dichroic dye, and an optically active substance [paragraph 124].

Applicant is required to cancel the new matter in the reply to this Office Action.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2871

Claims 11-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sano et al. (US 5694188A) in view of Wakita et al (US 5574593).

With respect to claims 11-13 and 15, Sano et al. discloses (col. 1, lines 40-41; col. 4, lines 48-56, col. 4, line 64 to col. 5, line 4) a liquid crystal electro-optical device comprising:

- a pair of substrates 1/17, at least one of said pair of substrates being transparent;
- a light modulating layer interposed between the pair of substrates, said light modulating layer including a guest-host type liquid crystal
- comb-shaped wall electrode 10 for applying an electric field in a direction parallel with the pair of substrates.

Wherein

- the liquid crystal and the dichroic dye are inherently aligned in the direction parallel with the substrate by the electric field to obtain a light transmission state.

However, Sano et al. do not clearly disclose that the guest-host type LC includes a liquid crystal, an optically active substance, and a dichroic dye; and the features recited in claims 14 and 16.

Wakita et al teach (abstract) using a guest-host type LC including a nematic liquid crystal, an optically active substance (chiral), and a dichroic dye in a liquid crystal device for high contrast without requiring any polarizers.

Therefore, it would have been obvious for one of ordinary skill in the art to use the guest-host type LC including a nematic liquid crystal, an optically active substance (chiral), and a dichroic dye in Sano's liquid crystal device for high contrast without requiring any polarizers, as taught by Wakita et al.

Claims 14 and 16:

Since an optical substance (chiral) is added to the nematic liquid crystal to form a cholesteric phase with helical arrangement of directors where the dichroic dye molecules lean on, the dichroic dye molecules are inherently oriented in all direction around the axis that is perpendicular to the substrates to attain a dark state when the electric field is not applied.

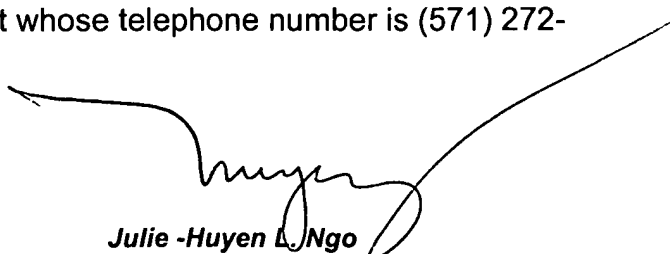
**Contact Information**

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Julie-Huyen L. Ngo whose telephone number is (571) 272-2295. The Examiner can normally be reached on Monday-T-F.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's Supervisor, Mr. Robert H. Kim can be reached at (571) 272-2293.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1562.

February 20, 2006

  
**Julie -Huyen L. Ngo**  
**Primary Examiner**  
Art Unit 2871